



SUBSTITUTE SPECIFICATION

BACK CARTRIDGE COUPLING STRUCTURE

BACKGROUND OF THE INVENTION

Field of Invention

5 The present invention relates to a coupling~~back~~ cartridge structure, which is used for coupling a body and a back cartridge in atthe handheld data processor, and more particularly to a ~~back cartridge~~-coupling structure that prevents ~~allow~~s the body and the back cartridge of the handheld data processor from~~to~~ cause no scratch when they~~both~~ two are coupled ~~with each other~~together.

10 Related Art

At present, atthe back cartridge is used to provide the handheld data processor a sufficient electric power, it can be furnished with a backup battery or other devices that can expand the function of the handheld data processor (such as CF or, SD card receptacle module or wireless communication module). But, in conventional art, the coupling between the current~~back~~ cartridge and the body of the handheld data processor, such as Visor series products produced by Handspring, is coupl~~process~~ed by means of an~~the~~ upward-faced connecter slot disposed in the body and at~~the~~ 90° projected, downward-faced connecter disposed on the back cartridge. The back cartridge must be slid ~~face-to-face relative~~ to the body in order to let the connecter slot and connecter to be jointed when they~~both~~ are coupled. Therefore, the surface of the back cartridge and the body~~both~~ will be scratched over a long period of time. Also, a larger gap must be maintained between ~~both~~the back cartridge and the body so that they can be slid smoothly. As~~nd~~ in a consequence, the back cartridge and the body may not be coupled tightly~~.shakes easily after the coupling~~.

25 Therefore, it is important ~~for us~~ to invent a back cartridge coupling structure in order to prevent~~let~~ the surfaces of the body of the handheld data processor and back cartridge from~~not~~to scratch each other when ~~both~~they are coupled together.

SUMMARY OF THE INVENTION

The object of the invention is to provide a ~~back cartridge~~-coupling structure, ~~preventing enabling~~ the surfaces of a back cartridge and body ~~from not to~~ scratch each other through the coupling the body and the back cartridge in a vertical direction.

5 Accordingly, the body of a handheld data processor comprises a connector slot disposed at ~~its~~ the coupling face thereof. A back cartridge comprises a connector, corresponding to the connector slot, disposed on the coupling face thereof the back cartridge. The coupling structure comprises a seizing element and outer lining. The seizing element is disposed on the coupling surface of the body, and the outer lining, corresponding to the seizing element, is disposed at one side of the back cartridge and can be moved ~~in~~ parallel ~~relative~~ to the coupling face of the back cartridge. To couple the body and the cartridge, the two coupling surfaces need to be pressed toward each other in vertical direction so that the connector can be inserted into the connector slot ~~First~~, press the two coupling faces of the body and back cartridge toward each other face to face in vertical direction when both want to be coupled together so as to let the connector be inserted into the connector slot (it also means that the back cartridge is placed on the body). Thereafter, the outer lining is then slid ~~in~~ parallel ~~relative~~ to the coupling face of the back cartridge. And, the body and back cartridge are coupled together when the back cartridge is stuck by the seizing element.

10 Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

15 Thereafter, the outer lining is then slid ~~in~~ parallel ~~relative~~ to the coupling face of the back cartridge. And, the body and back cartridge are coupled together when the back cartridge is stuck by the seizing element.

20 Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

25 Thereafter, the outer lining is then slid ~~in~~ parallel ~~relative~~ to the coupling face of the back cartridge. And, the body and back cartridge are coupled together when the back cartridge is stuck by the seizing element.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more readily apparent ~~fully understood~~ from the ~~detailed description of the exemplary embodiments that follows, with reference to the attached drawings in which given hereinbelow~~ illustration only, and thus are not

~~limitative of the present invention, and wherein:~~

FIG. 1 is an explosive view of a coupling structure according to an exemplary preferred embodiment of the present invention.;

5 FIG. 2 is a cross sectional view illustrating a coupling structure according to an preferred exemplary embodiment of the present invention, ~~showing a sliding clasp hooks up a seizing element when a body and back cartridge are coupled together;~~

FIGS. 3A, 3B and 3C are schematic views illustrating a coupling structure according to an exemplary embodiment of the present invention of a ~~preferred embodiment, showing coupling motions of a body and back cartridge; and~~

10 FIGS. 4A-4B and 5 ~~is are~~ schematic views of a coupling structure according to another embodiment of the present invention, showing another type of seizing element.

DETAILED DESCRIPTION OF THE INVENTION

15 Please referring to FIG. 1, a back cartridge coupling structure 30 according to the invention is used in a handheld data processor 1, which comprises a body 10 and a back cartridge 20.

The body 10 comprises a coupling surface 11 and a connecter slot 12; the connecter slot 12 is disposed in the coupling surface 11.

20 The back cartridge 20 comprises a coupling face 21 and a connecter 22; the connecter 22, corresponding to the connecter slot 12 of the body, is disposed on the coupling face 21. The connecter 22 and the connecter slot 12 can be jointed together when the body 10 is coupled to the back cartridge 20.

25 The coupling structure 30 comprises a seizing element 31, an outer lining 32, sliding groove 33 and detaining holes 34. The seizing element 31 is disposed on the coupling surface 11 of the body 10 and is parallel to the ~~side~~ edge of the coupling surface 11 of the body 10. The outer lining 32, corresponding to the seizing element 31, is disposed at one sideend of the back cartridge 20 and comprises a projecting

column 321, buttons 322 and a sliding clasp 323. The sliding clasp 323 is disposed corresponding to one end of the seizing element 31 in order to hook up this end of seizing element 31 to prevent the back cartridge from falling down in the direction opposite to this end after the body 10 is coupled with the back cartridge 20, as FIG. 2 shown. The sliding groove 33 corresponding to the projecting column 321 is disposed in the back cartridge 20 so as to allow the projecting column 321 to be slid ~~therein~~ the groove 33. Therefore, the outer lining 32 can be slid along the edge of ~~in~~ parallel relative to the coupling face 21 of the back cartridge 20. The detaining holes 34 corresponding to the button 322s ~~are~~ is disposed in the body 10 ~~so that~~ in order to get the buttons 322 can fit into the detaining holes 34 ~~stuck therein~~ when the body 10 is coupled to the back cartridge 20.

To couple the body 10 and the back cartridge 20, As FIG. 3A, 3B and 3C shown, first, ~~press~~ the two coupling surfaces 11, 21 of the body 10 and the back cartridge 20 need to be pressed toward each other ~~face to face~~ in vertical direction ~~when both are~~ 15 ~~coupled together so as to let~~ so that the connecter 22 can be inserted into the connecter slot 12 (it also means that the back cartridge 20 is placed on the body 10), as shown in FIG. 3A. Thereafter, the outer lining 32 is then slid ~~in~~ parallel relative to the coupling face 21 of the back cartridge 20 (the projecting column 321 is slid along the sliding groove 33). ~~T~~And, the outer lining 32 is stuck by the seizing element 31 when it is 20 ~~slid, thereby~~ so as to increase the tightness of the coupling of the body 10 and back cartridge 20; ~~T~~he sliding clasp 323 hooks up one end of the seizing element 31; ~~T~~he buttons 322 ~~fit into~~ is detained in the detaining holes 34, ~~thereby~~ so as to couple the body 10 and back cartridge 20. ~~By the way,~~ ~~T~~he arrangement ~~disposition~~ of the buttons 322 and detaining holes 34 can increase the tightness of the coupling ~~let both be coupled~~ 25 ~~tightly.~~

Furthermore, referring to FIGS. 4 - 4B and 5, the end of the seizing element 31 that ~~first comes into~~ contacts with the outer lining 32 ~~first~~ is thinner ~~than the~~, ~~and~~ other end, ~~of the seizing element 31 that contacts with the outer lining 32 last is thicker~~ (~~it is also the time that the coupling of the body 10 and back cartridge 20 is completed~~), ~~S~~and such kind of ~~the~~ design can be used in the profile of the seizing element 31 whatever it is in a

direction parallel or perpendicular to the coupling face 11 so as to increase the tightness of two sides of or a direction perpendicular to the body 10 and back cartridge 20.

~~T~~Of course, the coupling face 11 does not have to be ~~is unnecessary~~ at the back face of the body 10. It may ~~an also~~ be at the front surface thereof or other positions.

5 The back cartridge coupling structure according to the present invention may prevent ~~doesn't cause~~ the surfaces of the back cartridge and body from ~~to~~ being scratched, because the back cartridge is pressed toward the body face to face in vertical direction while coupling. Furthermore, it is convenient to use only the outer lining according to the present invention to couple the back cartridge and body tightly.

10 The exemplary embodiments of the present invention have been ~~been~~ thus described in ~~an~~ illustrative manner. Many modifications and variations of the exemplary embodiments of the present invention are possible in light of the above teachings. Therefore, it is to be understood that within the scope of the appended claims, the exemplary embodiments of the present invention may be practiced otherwise
15 than as specifically described above, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.

ABSTRACT OF THE DISCLOSURE

A back cartridge coupling structure is for coupling a body and a back cartridge used in a handheld data processor comprising a ~~body and a back cartridge~~. A connecter slot disposed at the coupling face of the body, ~~corresponds to~~ a connecter disposed on the 5 coupling face of the back cartridge. ~~The coupling structure comprises a~~ seizing element disposed on the coupling face of the body, and an outer lining, corresponding to the seizing element and disposed at one end of the back cartridge, wherein the outer lining can be moved ~~in parallel relative to~~ the coupling face of the back cartridge. Pressing the two coupling faces toward each other face to face inserts the connector into 10 the connecter slot and sliding the outer lining relative to the coupling face of the back cartridge couples the body and the back cartridge together with the back cartridge sticking by the seizing element. Thereby, the both surfaces will not be scratched.